



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,034	09/29/2005	Hirofumi Kikkawa	KAWZ 200113	5564
27885	7590	06/22/2007		
FAY SHARPE LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			EXAMINER MILLER, SAMANTHA A	
			ART UNIT	PAPER NUMBER
			3749	
			MAIL DATE	DELIVERY MODE
			06/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/527,034

Applicant(s)

KIKKAWA ET AL.

Examiner

Samantha A. Miller

Art Unit

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 3/8/2005.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over YONEDA (US 4,614,645) in view of MONRO (US 5,044,424).

YONEDA teaches in the specification and Figs. 1-2 an invention in the same field of endeavor as applicant's invention that is described in the applicant's claims.

YONEDA teaches:

I. An air preheater (27, heats exhaust smoke from boiler) for heating combustion air by exhaust smoke (2) discharged from a boiler (1), a heat recoverer (33) for heating

Art Unit: 3749

heat medium by exhaust smoke (5) discharged from the air preheater, a dust collector (3) for collecting soot and dust in exhaust smoke discharged from the heat recoverer (dust collected from the exhaust gas is introduced through line 37) (Fig.2) (col.2 ll.25-29 and col.5 ll.52-53), a wet-type exhaust smoke processing apparatus (6, 8) for wet-type processing exhaust smoke discharged from the dust collector (3) (through line 37) (Fig.2) (col.5 ll.52-53), a reheater (col.4 ll.23-27, the recoverer (33) acts as a reheater (28) and recoverer (33) process of prior art) for heating exhaust smoke (9) discharged from the wet-type exhaust smoke processing apparatus by the heat medium (col.4 ll.33-51), and a heat medium circulation pipe passage (9) for circulating the heat medium between the reheater and the heat recoverer (col.4 ll.33-51) (Fig.2), wherein the heat medium circulation pipe passage is provided with temperature control means (col.6 l.28-col.7 l.51, comparative data in which the temperature was measured and controlled) which measures a heavy metal concentration in exhaust smoke discharged from any one or more of the dust collector, the wet-type exhaust smoke processing apparatus and the reheater, and adjust the temperature of exhaust smoke at an outlet of the heat recoverer such that the heavy metal concentration falls within a predetermined range (Tables 1-4) (col.8 ll.54-64).

2. The temperature control means is any one of or more of means for adjusting a heat medium circulation flow rate of the heat medium circulating between the reheater and the heat recoverer, means for cooling the heat medium means for heating the heat medium, and means which disposes a bypass pipe (connecting 33 to 6 to 25 to 27f, Fig.2) for connecting an inlet and an outlet of a passage of the heat medium flowing into

Art Unit: 3749

the heat recoverer and which adjust a flow rate of the heat medium in the bypass pipe (col.6 l.28-col.7 l.51, comparative data in which the temperature and flow rate was measured and controlled).

3. A boiler (1), a dust collector (3) for collecting soot and dust in exhaust smoke discharged from the air preheater (27), and a wet-type exhaust smoke processing apparatus (6, 8) for wet-type processing exhaust smoke discharged from the dust collector (through line 37) (Fig.2) (col.5 ll.52-53), wherein the system further comprises control means which measures a heavy metal concentration in exhaust smoke discharged from the wet-type exhaust smoke processing apparatus (Tables 1-4), and which adjusts any one or more of pH of liquid absorbent of the wet-type exhaust smoke processing apparatus (col.7 ll.12-25), a flow rate of oxidizing-air ( from 16 fed though 23 to 25, col.6 ll.45-48), and a flow rate of waste water, such that the heavy metal concentration falls within a predetermined range (col.8 ll.40-64).

4. An air preheater (27) for heating combustion air by exhaust smoke discharged from a boiler (1), a heat recoverer (33) for heating a heat medium by exhaust smoke discharged from the air preheater, a dust collector (3) for collecting soot and dust in exhaust smoke discharged from the heat recoverer (through line 37) (Fig.2) (col.5 ll.52-53), a wet-type exhaust smoke processing apparatus for wet-type processing exhaust smoke discharged from the dust collector (through line 37) (Fig.2) (col.5 ll.52-53), a reheater (col.4 ll.23-27, the recoverer (33) acts as a reheater (28) and recoverer (33) process of prior art) for heating exhaust smoke discharged from the wet-type exhaust smoke processing apparatus by the heat medium (Fig.2), and a heat medium circulation

pipe (9) passage for circulating the heat medium between the reheater and the heat recoverer, wherein the system further comprises control means which measures a heavy metal concentration (Tables 1-4) in exhaust smoke discharged from the dust collector, and adjusts the temperature of exhaust smoke at an outlet of the heat recoverer such that the heavy metal concentration (Tables 1-4 teaches finding concentrations of metals) falls within a predetermined range (col.8 ll.40-64), and which also measures the heavy metal concentration in exhaust smoke discharged from the wet-type exhaust smoke processing apparatus (Tables 1-4), and adjusts any one or more of pH of liquid absorbent of the wet-type exhaust smoke processing apparatus (col.7 ll.12-25), a flow rate of oxidizing-air (col.6 ll.45-48), and a flow rate of waste water, such that the heavy metal concentration falls within a predetermined range (col.8 ll.40-64).

YONEDA teaches the invention as discussed above. However, YONEDA possibly does not teach a preheater that has gas-gas heat exchange with gas going back into the boiler.

Referring to claims 1-4, MONRO teaches a preheater (22) that uses gas (18) going out of the boiler (12) to heat the clean gas (16) that enters boiler (12) (Fig.1) (col.5 ll.10-26).

Therefore, it would have been obvious to a person having ordinary skills in the art at the time the invention was made to have modified the exhaust smoke processing system of YONEDA in view of the teaching of MONRO in order to for improving the

Art Unit: 3749

efficiency of such heat generators and for better utilization of heat produced in the thermal section (col.1 ll.22-26)

**Conclusion**

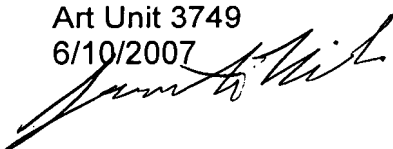
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. As listed on PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samantha A. Miller whose telephone number is 571-272-9967. The examiner can normally be reached on Monday - Thursday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on 571-272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Samantha Miller  
Examiner  
Art Unit 3749  
6/10/2007



STEVEN B. MCALLISTER  
SUPERVISORY PATENT EXAMINER